<u>REMARKS</u>

The Applicant respectfully requests further examination and consideration in view of the amendments above and the arguments set forth fully below. Prior to this Office Action, Claims 1-41 were pending in this application. Within the Office Action, Claims 1-9, 12-22, 25-36, and 39-41 are rejected, and Claims 10, 11, 23, 24, 37, and 38 are objected to. By the above amendments, Claims 1, 3, 4, 9, 10, 12-17, 19, 22, 23, 25-28, 30, 31, 33, 36, 37, and 39-41 are amended. Claims 2, 7, 8, 20, 21, 29, 34, and 35 are canceled. Claims 42-60 are new. Accordingly, Claims 1-60 are currently pending in this application.

<u>Rejections Under 35 U.S.C. § 102</u>

Within the Office Action, Claims 1-3, 7, 8, 15, 16, 20, and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,240,083 to Wright et al. (hereinafter "Wright"). The Applicant respectfully traverses these rejections.

Wright teaches channel access for communicating a data packet over a multiple access communication network having a forward channel (downstream) and a reverse channel (upstream). A broadcast channel control packet is transmitted over the forward channel, and is received by subscriber device 26 to determine if contention mode or reservation mode is indicated. If contention mode is indicated, and only if the packet size to be transmitted is no longer than a predetermined size, then the subscriber device transmits a packet in the contention mode over the reverse channel. If contention mode is indicated and the packet size is larger than the predetermined size, the subscriber device 26 transmits a reservation request over the reverse channel. If, instead, the broadcast channel control packet received by the subscriber device 26 indicates the reservation mode, and if the broadcast channel control packet also includes an identifier associated with the subscriber device 26, then the subscriber device 26 transmits the data packet, regardless of the packet size. Summarily, Wright teaches allocating a transmission slot according to a reservation mode based on the size of the data packet to be transmitted. Wright does not teach allocating a transmission according to the reservation mode based on the number of user access requests received. Further, Wright does not teach dynamically adjusting a number of transmission slots allocated to the reservation mode based on a change in the number of users requesting access.

In contrast to the teachings of Wright, the present invention teaches implementing an adaptive cell scheduling algorithm in a wireless network channel shared by a plurality of users. The present invention switches between two coordinating slotted multiple access modes to coordinate user transmission. The two coordinating slotted multiple access modes, a contention mode and a request and grant mode, are both present in the network at all times and the percentage of each of the modes are dynamically changing values whose sum is always 100%.

The present invention allocates a queue in a weighted fair queue to generate contention slots. Each contention slot is designated for either the request and grant mode or the contention mode. Idle end user nodes (EUNs) utilize a contention slot designated for contention mode to request access. All EUNs are grouped into virtual groups, and an upstream (from EUN to a hub) contention mode contention slot is announced to all EUNs within a given virtual group via a grant from the hub using a multicast addressing mode. If a collision occurs between two users, two new contention slots designated for request and grant mode are generated, and the newly generated slots are placed in the weighted fair queue. Each contention slot designated for request and grant mode is placed in the weighted fair queue via a request and grant queue. The contention mode contention slot is placed in the weighted fair queue via a contention queue. When all contention is resolved, a starting request is placed in the weighted fair queue. This method allows the weighted fair queue to adjust the rate of generating contention slots automatically. When the network is heavily loaded and a number of EUNs are requesting bandwidth from the weighted fair queue, the contention queue will occupy a small percentage of the total requests to the weighted fair queue. As the network becomes lightly loaded, the number of EUNs requesting bandwidth from the weighted fair queue decreases, thereby reducing the number of request and grant queues. However, the contention queue remains, and therefore, as the number of EUNs requesting bandwidth in the request and grant mode decreases, the ratio of the request and grant to contention queues decreases.

The amended independent Claim 1 is directed to a method of integrating a scheduling algorithm in a wireless network shared by a plurality of users. The method includes generating one or more contention slots, allocating a first number of contention slots according to a request and grant mode, <u>wherein the first number is determined by a number of user access requests</u>, allocating a second number of contention slots according to a contention mode, prioritizing the first number of contention slots and the second number of contention slots, and dynamically <u>adjusting the first number of contention slots according to a change in the number of users requesting access</u>. As discussed above, Wright does not teach allocating a transmission

according to the reservation mode based on the number of user access requests received. Further, Wright does not teach dynamically adjusting a number of transmission slots allocated to the reservation mode based on a change in the number of users requesting access. For at least these reasons, the independent Claim 1 is allowable over Wright.

Claims 2, 3, 7, and 8 are dependent on the independent Claim 1. As discussed above, Claim 1 is allowable over the teachings of Wright. Accordingly, Claims 2, 3, 7, and 8 are each also allowable as being dependent upon an allowable base claim.

The amended independent Claim 15 is directed to an apparatus for integrating a scheduling algorithm in a wireless network shared by a plurality of users. The apparatus includes means for generating one or more contention slots, means for allocating a first number of contention slots according to a request and grant mode, <u>wherein the first number is determined by a number of user access requests</u>, means for allocating a second number of contention slots according to a contention mode, means for prioritizing the first number of contention slots and the second number of contention slots, and means for dynamically <u>adjusting the first number of contention slots according to a change in the number of users requesting access</u>. As discussed above, Wright does not teach allocating a transmission according to the reservation mode based on the number of user access requests received. Further, Wright does not teach dynamically adjusting a number of transmission slots allocated to the reservation mode based on a change in the number of users requesting access. For at least these reasons, the independent Claim 15 is allowable over Wright.

Claims 16, 20, and 21 are dependent on the independent Claim 15. As stated above, Claim 15 is in a condition for allowance. Accordingly, Claims 16, 20, and 21 are each also allowable as being dependent upon an allowable base claim.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 28-36 and 39-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,366,761 to Montpetit in view of U.S. Patent No. 6,381,228 to Prieto, Jr. et al. (hereinafter "Prieto"). The Applicant respectfully traverses these rejections.

The subject matter of the canceled dependent Claims 34 and 35 are included in the amended independent Claim 28. Within the Office Action, it is stated that the limitations of Claims 34 and 35 are rejected for the same reasons stated in regards to Claim 1. The Applicant assumes this is a reference to the rejection of dependent Claims 7 and 8, the subject matter of

which corresponds to the subject matter of Claims 34 and 35, respectively. However, the reasons stated for rejection of Claims 7 and 8 are directed to Wright, not Montpetit or Prieto. As such, the rejection of Claims 34 and 35 as being unpatentable over Montpetit in view of Prieto is not proper. Further, neither Montpetit nor Prieto teach a scheduling algorithm that dynamically adjusts the number of contention slots allocated according to a request and grant mode and the number of contention slots allocated according to a contention mode. As such, neither Montpetit, Prieto, nor their combination teach the the limitations of the amended independent Claim 28, which includes the subject matter of the canceled dependent Claims 34 and 35.

The amended independent Claim 28 is directed to an apparatus for integrating a scheduling algorithm in a wireless network channel shared by a plurality of users. The apparatus includes a hub for transmitting and receiving wireless network signals such that the hub may receive requests and assign portions of a communication bandwidth, a plurality of end user nodes for transmitting and receiving wireless network signals such that a plurality of users may request or be granted a portion of the communication bandwidth, and a weighted fair queue for utilizing an adaptive contention scheduling scheme to generate one or more contention slots, to allocate a first number of contention slots according to a request and grant mode, wherein the first number is determined by a number of user access requests, to allocate a second number of contention slots according to a contention mode, to prioritize the first number of contention slots and the second number of contention slots, and to dynamically adjust the first number of contention slots according to a change in the number of users requesting access. As discussed above, neither Montpetit, Prieto, nor their combination teach a scheduling algorithm that dynamically adjusts the number of contention slots allocated according to a request and grant mode and the number of contention slots allocated according to a contention mode. For at least these reasons, the independent Claim 28 is allowable over Montpetit, Prieto, and their combination.

Claims 29-36 and 39-41 are dependent on independent Claim 28. As stated above, Claim 28 is in a condition for allowance. Accordingly, Claims 29-36 and 39-41 are also in a condition for allowance.

Within the Office Action, Claims 4-6, 9, 12-14, 17-19, 22, and 25-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wright in view of Prieto. The Applicant respectfully traverses these rejections.

Claims 4-6, 9, and 12-14 are dependent on independent Claim 1. Claims 17-19, 22, and 25-27 are dependent on independent Claim 15. As stated above, Claims 1 and 15 are in a
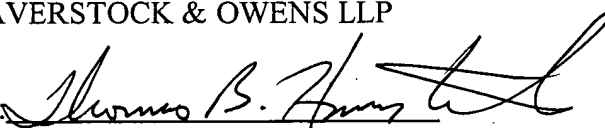
condition for allowance. Accordingly, Claims 4-6, 9, 12-14, 17-19, 22, and 25-27 are each also allowable as being dependent upon an allowable base claim.

Within the Office Action, it is stated that Claims 10, 11, 23, 24, 37, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable of rewritten in independent form including all the limitations of the base claim and any intervening claims.

For the reasons given above, Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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